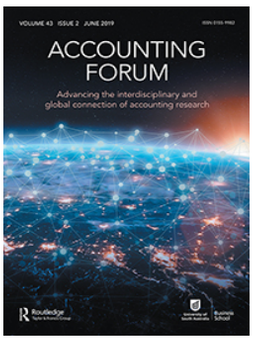

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The impact of multi-layer governance on bank risk disclosure in emerging markets: the case of Middle East and North Africa

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ABSTRACT

This study examines the impact of multi-layer governance mechanisms on the level of bank risk disclosure. Using a large dataset from 14 Middle East and North Africa (MENA) countries over a period of 8 years, our findings are three-fold. First, our results suggest that the presence of a *Sharia* supervisory board is positively associated with the level of risk disclosure. Second and at the bank-level, we find that ownership structures have a positive effect on the level of risk disclosure. At the country-level, our evidence suggests that control of corruption has a positive effect on the level of bank risk disclosure. Our study is, therefore, a major departure from much of the existing accounting literature that offers new crucial insights that show that firms' disclosure choices are not mainly shaped by firm-level (internal) governance arrangements, but also country-level (external) governance and religious factors. Our findings have important implications for corporate boards, investors, regulatory authorities, standards-setters and governments relating to the development, implementation and enforcement of corporate and national governance standards.

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1. Introduction

The 2007/2008 financial crisis has increased the importance of risk management and disclosure, as well as good governance structures in the banking sector worldwide (Alnabsha, Abdou, Ntim, & Elamer, 2018; Barakat & Hussainey, 2013; Elmagrhi, Ntim, Elamer, & Zhang, 2018; Ntim, 2016; Walker Review, 2009). Despite the growing importance of this topic, studies examining the impact of firm-level governance structures on risk disclosure are generally rare (Barakat & Hussainey, 2013; Elshandidy & Neri, 2015; Elshandidy, Fraser, & Hussainey, 2013; Ntim, Lindop, & Thomas, 2013), especially in the banking

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sector of emerging market countries, such as those in the Middle East and North Africa (MENA[1]) region. Specifically, the stock markets of most MENA countries (e.g. Egypt, Jordan, Kuwait, Lebanon, Morocco, and the United Arab Emirates (UAE)) were severely affected by the 2007/2008 financial crisis due to their deeper links with the global stock markets with large exposures to US/EU banks' credit, liquidity and market risks. For instance, foreign direct investment (FDI) inflows to MENA countries dropped from $78.5 billion in 2008 to $68.4 billion in 2009 (Neaime, 2016). Nevertheless and despite its growing importance, it is still not well understood whether multi-layer governance (MLG)[2] mechanisms (e.g. board and ownership mechanisms, the presence of a *Sharia*[3] supervisory board (SSB), and country-level governance mechanisms) can affect the level of bank risk disclosures. Therefore, this study examines the impact of MLG mechanisms on the level of risk disclosure in annual reports by banks using a dataset from 14 countries in the MENA region over the 2006–2013 period. As current International Financial Reporting Standards (IFRS), Basel accords (I, II, and III), and Corporate Governance (CG) reforms require banks to provide more transparent information on their risk management, our study explores the underlying governance determinants of risk disclosure practices across MENA countries.

Theoretically, we expect firm- and country-level governance structures to influence the level of bank risk disclosure for a number of reasons. First,, from the standpoint of resource dependence theory (RDT), bank boards and shareholders might increase the quality of risk disclosure in order to obtain access to critical resources, such as finance and business contracts (Jia, Ding, Li, & Wu, 2009; Jizi, Salama, Dixon, & Stratling, 2014; Ntim et al., 2013; Pfeffer & Salancik, 1978). With a particular focus on Islamic banks, their SSBs can be a mechanism for securing such resources and legitimising their banks' operations and performance (Drees & Heugens, 2013; Oliveira, Rodrigues, & Craig, 2011; Suchman, 1995). Second, risk management and disclosure activities can facilitate banks towards achieving greater internal organisational efficiency (Rattanataipop, 2013). However, some banks may be able to achieve these efficiencies with fewer resources because they possess complementary competencies. As a result, these banks may enjoy greater opportunities for competitive advantage through continual risk management and disclosure improvements (Barakat & Hussainey, 2013). Third, comprehensive risk disclosure often acts as a signal of improved risk management and compliance to IFRS regulations and Basel Accords, which can enhance the reputation of such banks (Ntim et al., 2013). Finally, banks are characterised by their heavy reliance on outside resources. This dependence on external resources makes banks exposed to both changes in the resources flow and country-level institutional pressures (Bonetti, Magnan, & Parbonetti, 2016; Rattanataipop, 2013). Thus,

[1]MENA refers to the Middle East and North Africa region. MENA region includes 19 countries as follows: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, UAE, West Bank and Gaza, and Yemen.

[2]Multi-layer governance (MLG) consists of three layers of governance structures that we employ in this study. The first layer is the in-board layer, which attempts to capture the role and effect of the Sharia supervisory board on bank risk disclosures. The second layer is the bank-level governance layer, which includes board and ownership structures and how they can affect bank risk disclosures. The last layer is the role of country-level governance mechanisms (e.g. corruption and rule of law) on bank risk disclosures.

[3]Sharia or Islamic law are Islamic principles derived mainly from contemporary Islamic theologic interpretations of the Quran and the Hadith of the Prophet Muhammad (Syed & Van Buren, 2014). It should be noted that Sharia or Islamic laws that regulate human daily interactions (e.g. financial transactions) are not strictly well-defined set of specific rules and principles because they tend to differ based on different Islamic scholars' interpretations in relation to contemporary activities (Abedifar et al., 2013; Syed & Van Buren, 2014).

banks may choose to improve their risk disclosure level as a strategic behaviour to manipulate external dependencies or exert influence over the allocation or sources of critical resources in direct response to the country-level governance processes that affect them (Bonetti et al., 2016; Pfeffer & Salancik, 1978).

Consequently, a number of empirical studies have either investigated the impact of individual/single governance structures on risk disclosure mainly in non-financial institutions in comparison with financial institutions, such as banks (Barakat & Hussainey, 2013; Mokhtar & Mellett, 2013; Ntim et al., 2013). Our study seeks to depart from much of the extant literature by focusing on banks, and in fact, is directly related to three recent studies by Barakat and Hussainey (2013), Mokhtar and Mellett (2013) and Ntim et al. (2013). Specifically, Ntim et al. (2013) examined the impact of firm-level governance on risk disclosures using a sample of South African listed non-financial firms. Their findings suggest a positive relationship between firm-level governance (e.g. board size and independence) and risk disclosure. Similarly and using a sample of 105 Egyptian non-financial firms, Mokhtar and Mellett (2013) explored the impact of ownership and board structure on risk disclosure level. Their reported findings indicate a negative relationship between (i) board and ownership structures (e.g. CEO duality and ownership concentration), and risk disclosure. Additionally, Barakat and Hussainey (2013) investigated the relationship between firm- and country-level governance structures (e.g. board independence, government ownership and rule of law) and operational risk information relating to European banks. They report a positive association among the governance structures examined and the level of operational risk disclosure. We note, however, that whilst Mokhtar and Mellett (2013) and Ntim et al. (2013) evidence relates to non-financials using only firm-level governance mechanisms, Barakat and Hussainey (2013) examined operational risks only in developed European banks. By contrast, our study examines all the three main types of risks (financial, operational and strategic risks) that have been identified in banks from the MENA region, and consequently investigates the extent to which both firm- (e.g. Sharia, board and ownership structures) and country-level (e.g. absence of violence and control of corruption) governance mechanisms can explain observable differences in such bank risk disclosures.

This study focuses on MENA countries because they provide a unique context to conduct this study for a number of important reasons. First, similar to many emerging markets, MENA countries have witnessed varied challenges in relation to their CG practices compared to their developed country counterparts. These challenges include: the prevalence of concentrated power in the form of widespread CEO role duality, limited board independence, and poor levels of transparency and disclosure practices (Hassan, Romilly, Giorgioni, & Power, 2009; Samaha, Dahawy, Hussainey, & Stapleton, 2012). Second, many MENA governments and regulatory authorities have pursued a considerable number of reforms in the area of CG, including the implementation of IFRS and Basel accords (e.g. I, II and III), which require banks to report more information about their risk management practices. Third, the MENA banking sector has experienced a phenomenal growth in the numbers of Islamic (IBs) and dual (DBs)[4] banks in recent times (Mollaha & Zaman, 2015). However, whilst this growth is generally viewed as a

[4]Dual banks offer (i) conventional financial products and services and (ii) those services that comply with *Sharia* law and principles, which seek to meet the needs of people and companies with Islamic religious concerns.

positive development, it can also create additional agency, governance and management challenges, as IBs and DBs tend to have two distinct internal CG structures. These consist of the traditional board of directors, who are expected to focus on taking conventional decisions on the one hand, and an Islamic governance committee/SSB, which tends to focus on ensuring that the products and services of their banks are in compliance with *Sharia* or Islamic law, on the other hand (Mollaha & Zaman, 2015; Safieddine, 2009). However, to-date, few studies have examined the effect of Islamic governance committee/SSB on bank risk disclosures.

Finally, the MENA region includes some of the rapidly growing countries of the Gulf Cooperation Council (GCC), which have recently attracted a lot of publicity and investments, especially with the liberalisation of their stock markets (e.g. UAE) (Neaime, 2016). At the same time, the banking sector in the MENA region is distinctly characterised by the presence of concentrated ownership structures (e.g. family ownership and government ownership) (Hassan et al., 2009; Neaime, 2016; Samaha et al., 2012), and thus offers an interesting context to investigate the effectiveness of risk disclosure and ownership structures. We, therefore, seek to extend the extant literature by considering how ownership concentration and ownership type affect risk disclosures.

Against this background, the central objective of this study is to examine the impact of MLG on the level of risk disclosure by MENA banks. Specifically, we investigate the impact of ownership, SSB and country-level governance characteristics on the level of risk disclosure in MENA banks (e.g. IBs, commercial banks, and DBs). In doing so, we extend, as well as make a number of new contributions to the extant literature. First and drawing insights from a RDT perspective, we provide evidence relating to the influence of SSB on the level of bank risk disclosures. The extant research suggests that *Shariah* boards play a significant role in monitoring bank's financial reporting quality (Al-Bassam & Ntim, 2017; Farook, Kabir Hassan, & Lanis, 2011; Safieddine, 2009). We expand this nascent research by offering evidence that SSB can serve as an additional governance layer with ability to thoroughly monitor and scrutinise managerial decisions, including those relating to disclosures. We argue that by highlighting the SSB role in connecting the bank to its external environment in order to secure important resources, our finding may help inform the decisions of the various stakeholders of banks, such as employees, depositors, investors, government and regulators. Second, our findings show that ownership structures are among the most important channels through which corporate governance may influence risk disclosure level. Third, and to the best of our knowledge, our study offers a fresh evidence on the effect of country-level factors on the level of risk disclosure. This result may potentially help investors and regulators to better understand and/or evaluate the channels through which macro-level factors, such as country governance affect disclosure level. Finally, we extend the existing literature by examining whether the type of bank ownership moderates the relationship between multi-layer governance mechanisms and risk disclosure in MENA countries.

The remainder of this paper is organised as follows. Section 2 discusses risk disclosure practices, CG reforms, the role of *Sharia* supervisory board (SSB) and Islamic governance in a MENA context. Section 3 presents the theoretical framework for risk disclosure. Section 4 reviews the literature on MLG and risk disclosure. Section 5 outlines the research design. Section 6 discusses the empirical findings. Section 7 concludes.

2. Risk management, CG disclosure reforms and *Sharia* supervisory boards in MENA

2.1. Risk disclosure in banks

The 2007/2008 financial crisis has highlighted the importance of risk management and disclosure in the banking sector worldwide. Indeed, the past decade has witnessed the global financial crisis, a credit crunch, a European debt crisis, and several high profile corporate failures, including the demise of large global banks (Barakat & Hussainey, 2013; Elamer, AlHares, Ntim, & Benyazid, 2018; Ntim et al., 2013; Ozturk, 2014). These failures occurred in the banking sector as banks were exposed to various types of risk. Although risk is a key issue in banking operations, there are two approaches to defining it (Ale, 2009; GASB, 2000). The first approach tends to concentrate on the negative effects of risk, including potential losses, negative impact, hazards, damages and/or threats (Ale, 2009; GASB, 2000). By contrast, a second approach focuses on a combination of the upside (favourable), and downside (unfavourable) of risks (IRM, 2002, COSO, 2004, ISO, 2009, IAS 32 and 39, IFRS 7). This study follows the second approach that defines risk as uncertainty, volatility, and exposure affecting the deviation from an expected outcome, which may result in potential gains or losses. In this way, our approach is comprehensive and reflects more accurately the multi-faceted nature of risk within banking operations and the broader business environment. In spite of the importance of risk management and disclosure to corporate operations, including banks and, especially during periods of economic and financial crises, there is no comprehensive financial reporting standard that currently covers all types of risks.

Banks are exposed to various types of risk when providing their financial services. The common types of risk (Barakat & Hussainey, 2013; Elamer, Ntim, & Abdou, 2017; Ntim et al., 2013), which are considered in this study include financial risks (e.g. credit risk, liquidity risk, market risks, capital management and adequacy risks), and non-financial risks (e.g. operational risks; and strategic risks). The Basel accords have outlined three main types of risks, which are: (i) credit, (ii) market, and (iii) operational risks; to which banks have an obligation to reserve adequate capital resources (i.e. regulatory capital) in order to absorb any unexpected losses. The International Accounting Standard (IAS) 32, IFRS 7 and IFRS 9 also provide a classification of risks and framework for disclosure, especially financial risks. A major limitation of these accounting standards is that they concentrate only on financial risks, which include credit, liquidity, market and derivative/financial instruments trading risks. In fact, neither Basel I, II and III nor IAS 32, IFRS 7 and IFRS 9 deal sufficiently with operational (e.g. technology and integrity risks) and strategic risks (e.g. inflation and interest rates risks) (Barakat & Hussainey, 2013; BCBS, 2006).

Meanwhile many experts and scholars still see the requirements of the Basel capital accords (Basel I, II and III) and IFRS (IAS 32, IFRS7 and IFRS 9), as being very general and qualitative in nature, although considered as an important step towards enhancing risk disclosure in banks (Barakat & Hussainey, 2013; Ford, Sundmacher, Finch, & Carlin, 2009). Thus, the occurrence of the financial crisis of 2007/08 and the associated credit crunch, it was shown that the capital regulation of Basel II might be insufficient to strengthen the banking sector's transparency. Therefore, there was a need to develop a new or revised framework (Mittoo & Varotto, 2011) to promote greater resilience

within the banking sector. Consequently in 2009, the Basel committee started to refine its Basel II accord, leading to the publication of the Basel III accord in 2010 with the aim of enhancing the resilience of banks in order to improve the banking sector's ability to absorb shocks arising from financial and economic stress. In addition, Basel III raised both the quality and quantity of the regulatory capital base and enhanced the risk coverage of the capital framework by strengthening the regulation, supervision, governance and risk management of the banking sector (BCBS, 2011; Rattanataipop, 2013; Walker, 2011). Walker (2011) has argued for the continuous improvement in risk management and disclosure practices, which is underpinned by good governance in order to reduce the likelihood of future financial crisis. Consequently, many emerging markets, including those in the MENA region, have embarked on reforms that are aimed at enhancing their risk management, CG structures and disclosure practices that are strongly informed by these international standards and reforms.

2.2. CG and disclosure reforms in MENA

Arab countries in the MENA region have significant differences in terms of income per capita levels, legal systems and stages of economic development and reforms (Samaha et al., 2012). Moreover, MENA countries, similar to many emerging market economies, face a number of challenges with respect to their CG practices compared to their developed counterparts. For instance, the MENA banking sectors are characterised by either majority family-owned banks (FOBs) or government-owned banks (GOBs), often with significant governance challenges. These include weak CG structures like CEO role dual, limited board independence, concentrated ownership structures, and poor transparency and disclosure practices (Baydoun, Maguire, Ryan, & Willett, 2012; Samaha et al., 2012). Moreover, banks have legal, ethical, and moral obligations to mitigate their risks in order to protect their shareholders, as well as their other stakeholders, and improve their performance because of the complexity and opaqueness of the banks' operations and their related exposures and risks (Falikhatun, Aryani, and Prabowo, 2010). Therefore, sound CG practices can be a way to increase transparency and legitimize their activities (Cheng & Courtenay, 2006).

Meanwhile CG structures in MENA countries have witnessed substantial changes over the past decades. In order to improve the integrity of local markets and attract foreign investors, governance practices have been aligned the relevant international standards. In this case, Oman was the first country in the MENA region to issue a code of CG in 2002, relating to companies listed on the Muscat securities market (Baydoun et al., 2012). Also, CG guidelines for UAE bank directors were issued in June 2006, and a code of CG was issued in 2007 for joint-stock companies (Hassan, 2009; Muzahem, 2011). Similarly, a code of CG was introduced in Saudi Arabia in 2006 (Baydoun et al., 2012). In Jordan, further to issuing the bank of directors' handbook of CG in 2004, its Central Bank also issued a CG code in 2007. Egypt published its first code for state-owned enterprises (SOEs) and private sector organisations in 2006. Appendix A1 presents the main corporate governance codes/guidelines changes in MENA countries.

In addition to the above reforms, MENA countries have a privileged geographic location, which covers four of the essential and international trade routes (i.e. Bab-el-

Mandeb, Gibraltar, Hormuz, and Suez) (Bitar, Saad, & Benlemlih, 2016). The strategic geographic location of MENA countries also makes them susceptible to social, economic and political instability. However, it is ex ante ambiguous whether MLG play a greater or lesser role in countries with social, political and economic turmoil (e.g. Bahrain, Egypt and Tunisia). Our study endeavours to shed some new insights on these issues, and thus may yield distinctive implications.

Furthermore, the MENA context is characterised by rapid growth of Islamic banking, which face additional risks and CG challenges. In particular, international financial institutions are increasingly becoming interested in Islamic finance and investment due to the large global growth in Islamic finance and banking worldwide. For instance, the amount of Islamic finance in 2011 totalled approximately $1.3 trillion in assets and an annual expected growth rate between 10% and 20% per year (Ernst & Young, 2012). Also, a 2012 report by Ernst and Young (2012) suggests that the growth of Islamic finance has continued at a steady pace, suggesting an average annual growth of 19% over the 2009–2011 period. Moreover, several major international banks (e.g. BNP Paribas, Citibank, Deutsche Bank, and HSBC) have established Islamic windows to meet the increasing demand for Islamic products (Ozturk, 2014). In the last decade, Islamic banking has transformed itself from a trivial financial experiment to a major player in the global banking sector in MENA countries. For example, MENA Islamic banking represent about 70% of the global Islamic banking system assets (Ernst & Young, 2016). Prior research (Farooq & Zaheer, 2015; Hasan & Dridi, 2010) suggests that the rapid development of the Islamic financial sector is accompanied by assertions about the relative resilience of Islamic banking to financial crises in comparison with conventional banking. For instance, Islamic finance experienced less deposit withdrawals, better capitalisation, higher asset growth, and relatively better stock market performance than conventional banks. Thus, this study seeks to examine the impact of CG in IBs in comparison with CBs, which can offer some benefits to regulatory authorities.

Meanwhile, the need for compliance with *Sharia* principles in the MENA region can also create unique CG challenges. The need to ensure compliance with *Sharia* principles differentiates an Islamic financial institution from its non-Islamic counterparts in its products, instruments, operations, practices, and management from traditional financial institution. As Islamic banks need to comply with *Sharia* principles, Islamic governance is considered as the backbone of Islamic banking and finance. It legitimises the practices of banking and financial institutions, and increases the confidence of the shareholders, as well as the public through ensuring that all practices and products are in compliance with *Sharia* rules. On the other hand, the existence of *Sharia* risk (Non-*Sharia* compliant manner) would not just affect the confidence of the shareholders and the public in Islamic banking and finance institutions, but might also expose Islamic banking to similar financial crises often faced by conventional banks (e.g. fiduciary and reputational risks). Most interestingly, surveys, such as those conducted by Chapra and Ahmed (2002) in Bahraini and Sudanese Islamic banks show that most depositors (86% and 95% in Bahraini and Sudanese Islamic banks) of Islamic banks are prepared to withdraw their funds if those banks fail to operate in a *Sharia* compliant manner (Chapra & Ahmed, 2002; Safieddine, 2009). Thus and due to the religious features of Islamic banks, Sharia risk arguably emerges as an additional operational risk in terms of the risk of Sharia non-compliance (Abedifar, Molyneux, & Tarazi, 2013; Izhar & Asutay, 2010; Van Greuning & Iqbal,

2007). Thus, the Islamic Financial Services Board (IFSB) defines operational risk in Islamic banks as "the risk of loss resulting from inadequate or failed internal processes, people, and system, or from external events, which includes, but is not limited to, legal risk and Sharia non-compliance risk" (IFSB, 2005, p. 26). Given this background, the main aim of this study is to measure the level of risk disclosure in MENA banks and ascertain the extent to which MLG mechanisms, including SSB, can explain observable differences in such risk disclosures.

3. Resource dependence theoretical framework

Resource dependence theory (RDT) explains how organisations decrease external interdependence and uncertainty (Pfeffer & Salancik, 1978). RDT suggests that organisations are open systems, which are not independent due to their reliance on the external environment to acquire and secure critical resources that they require (Durand & Jourdan, 2012; Pfeffer & Salancik, 1978). Organisations, such as banks must manage their risks in order to gain a steady supply of critical resources, such as financial capital, deposits and legitimacy to reinforce their existence and their ability to grow sustainably in the longer term. Organisations are both supported and constrained by their external environments (Garud, Kumaraswamy, & Karnøe, 2010). Hence, thriving organisations need to improve their ways of operations in order to successfully deal with their external environmental needs and to gain the support of the main resource owners (Pfeffer & Salancik, 1978).

Of direct relevance, regulators are promoting IFRS and Basel accords adoption because they believe that risk management and disclosure practices can help banks to increase their operational efficiencies, performance and mitigate severe future financial crises. Thus, risk management and disclosure activities can create opportunities to gain competitive advantage (Hart, 1995). At the most basic level, risk management and disclosure practices can help banks to ensure that their management practices conform to IFRS regulations and Basel accords. However, the risk management and disclosure practices can also facilitate the implementation of measures that can prevent/mitigate risks. As a result, some banks may no longer be subject to some costly regulatory mandates. Further, risk management and disclosure practices can assist banks to scrutinise their internal operations, involve employees in risk management issues, continually monitor their progress, and enhance their knowledge about their operations. All of these actions can also help banks to improve their internal operations, achieve greater efficiencies, and create opportunities for achieving their strategic objectives.

RDT can be extended to consider the role of risk disclosure, as a signal of improved risk management and compliance to IFRS regulations and Basel accords, and hence, reputation in those fields because disclosure impacts the external perception of a bank's reputation. It will be difficult for banks investing in risk management and disclosure activities to create positive reputation to realise the value of such reputation without making related disclosures (Ntim et al., 2013). In addition, bank boards and shareholders might increase the quality of risk disclosure in order to obtain access to critical resources, such as finance and business contracts (Jia et al., 2009; Jizi et al., 2014; Ntim et al., 2013; Pfeffer & Salancik, 1978). With a particular focus on Islamic banks, their SSBs can be a mechanism for securing such resources and legitimising their operations and performance (Drees & Heugens,

2013; Oliveira et al., 2011; Suchman, 1995). Moreover, risk management and disclosure activities can assist banks in achieving greater organisational efficiency (Rattanataipop, 2013). However, some banks may achieve these efficiencies with fewer resources because they possess complementary competencies. As a result, these banks may enjoy greater opportunities for competitive advantage through continual risk management and disclosure improvement (Barakat & Hussainey, 2013).

Based on the above theoretical viewpoint, RDT suggests that bank management might use risk disclosure, as an instrument to support the bank's legitimacy and reputation, and thereby sustaining the flow of critical resources with different stakeholders, and eventually maintaining their survival and growth (Oliveira et al., 2011). Therefore, we suggest and test a number of hypotheses by concentrating on the extent to which different types of governance structures affect risk disclosure of MENA banks.

4. Empirical literature and hypotheses development

Whilst a considerable number of studies have examined the impact of general firm characteristics, such as firm size on the level of risk disclosure (Elzahar & Hussainey, 2012; Mokhtar & Mellett, 2013; Rajab & Handley-Schachler, 2009), few studies have investigated the impact of governance variables on risk disclosure (Abraham & Cox, 2007; Elshandidy et al., 2013; Elshandidy & Neri, 2015; Muzahem, 2011; Ntim et al., 2013). In addition, a limited number of studies have examined the power of SSBs' to monitor banks' CG/CSR disclosure and performance (Al-Bassam & Ntim, 2017; Farook et al., 2011; Grassa, 2016; Rahman & Bukair, 2013), as well as how country-level governance factors, such as the rule of law affect risk disclosures (Barakat & Hussainey, 2013). Following these previous studies, this study seeks to explore how bank- and country-level governance mechanisms in the form of Islamic governance/SSB characteristics, ownership mechanisms (i.e. governmental and family ownership) and country-level governance (i.e. political strength and lack of violence/terrorism and control of corruption) drive the level of bank risk disclosures.

4.1. Islamic governance/SSB and risk disclosure

Islamic governance/(SSB) seeks to ensure that all practices and activities of banks (e.g. products, instruments, operations, practices, and management) are in compliance with Sharia principles and rules at all times, especially with respect to RIBA (interest) and speculative behaviour (Farook et al., 2011; Kamla & Alsoufi, 2015; Riaz, Burton, & Monk, 2017; Safieddine, 2009). Theoretically, the unique problems faced by Islamic financial institutions like "Mudarabah" (profit-sharing) can increase adverse selection and moral hazard problems. This can exacerbate agency problems by increasing opportunities for managerial expropriation of bank resources (Kamla, Gallhofer, & Haslam, 2006; Safieddine, 2009). Therefore, RDT suggests that the SSB may be able to offer better access to a banks' external environment in order to enhance opportunities for securing vital resources, such as finance and business contracts (Jia et al., 2009; Jizi et al., 2014; Pfeffer & Salancik, 1978).

In accordance to the above view, Islamic governance structure (SSB) and its particular members are considered as border spanners acquiring crucial resources (e.g. knowledge,

contacts, networks) to ensure the survival of a bank (Pfeffer, 1972). This goes in contrast to the control and monitoring role emphasis that arises from the principal-agent puzzle (Fama, 1980; Fama & Jensen, 1983). RDT suggests that SSBs have a further role in connecting the bank to its external environment in order to secure important resources (Pfeffer & Salancik, 1978). SSB members' knowledge and expertise are important for their ability to offer the required advice and insights to support management in giving reliable decisions. For example, Al-Bassam and Ntim (2017), Farook et al. (2011), and Rahman and Bukair (2013) argue that SSB with extensive and more varied expertise and knowledge, including financial expertise, may be more motivated to push for true, fair and transparent disclosures, including those relating to inherent risks; in order to relay this information not only to shareholders, but also to other stakeholders, and thereby legitimising the banks' practices.

Empirically, limited, but a gradually growing number of studies have suggested that SSB can be a key governance mechanism that may be able to enhance disclosure quality and performance (Farook et al., 2011; Mollaha & Zaman, 2015; Rahman & Bukair, 2013). For instance, Farook et al. (2011), and Rahman and Bukair (2013) find a significant positive association between SSB characteristics and the level of CSR disclosure. Al-Bassam and Ntim (2017) also find a positive relation between SSB characteristics and the level of voluntary CG disclosure in Saudi listed firms. In addition, Mollaha and Zaman (2015) find a positive relation between the intensity of *Sharia* board supervision and bank performance. By contrast, Safieddine (2009) finds deficiencies in *Sharia* governance practices. For instance, the study found that the establishment of a governance committee or an audit committee was not common among the banks that they surveyed. Therefore, the financial reporting process has a limitation that could increase agency problems. Whilst some research has been carried out on Islamic governance/ SSB characteristics and voluntary disclosure (Al-Bassam & Ntim, 2017), to the best of our knowledge, no prior study has examined the relationship between SSB characteristics and the level of risk disclosure. In summary, we expect that the formation of SSB can establish an observable relationship between banks and external resource providers that may ultimately have a positive effect on risk management and disclosure practices. Therefore, the study's first hypothesis is that:

> **H_1**: There is a positive association between Islamic governance and MENA banks' risk disclosures.

4.2. Corporate governance: bank ownership mechanisms

Ownership structure can have an impact on attitudes to governance and risk disclosure (Beattie, Fearnley, & Brandt, 2001; Ntim & Soobaroyen, 2013; Ntim, Opong, & Danbolt, 2015). The directors (insiders) prepare the annual report for shareholders (outsiders) and thus, ownership might play a vital role in the extent to which risk disclosure occurs (Abraham & Cox, 2007; Fama & Jensen, 1983; Shleifer & Vishny, 1997). For instance, RDT suggests that major shareholders of banks (e.g. government and family shareholders) may put pressure on managers to disclose more transparent information relating to risk in order to secure access to critical resources, such as funds and customers (Branco & Rodrigues, 2008; Pfeffer & Salancik, 1978). Specifically, drawing on RDT, we

hypothesise that banks, which depend heavily on government or/and family funding will be more keen to make crucial efforts to conform to new rules and make sure that their financial reporting is up to a high standard.

Empirically, Alhazaimeh, Palaniappan, and Almsafir (2014), Eng and Mak (2003), Ghazali (2007), Ntim et al. (2013), and Ntim and Oseit (2011) report a positive association between government ownership and risk disclosure. In contrast, Barakat and Hussainey (2013), and Naser, Al-Khatib, and Karbhari (2002) have reported no such association, whilst Dam and Scholtens (2012) find a negative association between government ownership and voluntary disclosure. Similarly, Chau and Gray (2010), Chen and Jaggi (2001), Chen, Chen, and Cheng (2008), and Haniffa and Cooke (2002) find negative relation between family shareholding and disclosure, whilst Ali, Chen, and Radhakrishnan (2007), Cascino, Pugliese, Mussolino, and Sansone (2010), Chen et al. (2008), Wan-Hussin (2009), and Wang (2006) find a positive relationship between family shareholding and disclosure quality. Notably, to the best of our knowledge, no prior research has examined the relation between family ownership and risk disclosure. Therefore, the study's second hypothesis is that:

H_2: There is a positive relationship between ownership structure (i.e., government and family shareholdings) and MENA banks' risk disclosures.

4.3. Country-level governance

Country-level governance is likely to play a crucial role in shaping risk disclosure level for a number of reasons (Beltratti & Stulz, 2012; Essen, Engelen, & Carney, 2013; Kaufmann, Kraay, & Mastruzzi, 2010). First, a country's governance arrangements guide bank incentives to disclose risk information that reflects the underlying risk management and economic performance (Ball, Robin, & Wu, 2003; Burgstahler, Hail, & Leuz, 2006; Leuz, Nanda, & Wysocki, 2003). Second, bank managers under the scrutiny of effective country-level governance are expected to employ the intrinsic flexibility offered by corporate governance codes and accounting standards to communicate higher level of risk information in order to reduce information asymmetry that can help in gaining more external resources (Beyer, Cohen, Lys, & Walther, 2010). Finally, banks are characterised by their heavy reliance on outside resources. This dependence on external resources makes banks exposed to both changes in the flow of resources and country–level institutional pressures. Thus, banks may choose to improve their risk disclosure level, as a strategic move towards influencing external dependencies or exerting influence over the allocation or sources of critical resources in response to the country-level governance processes that affect them (Bonetti et al., 2016; Pfeffer & Salancik, 1978).

For example, La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1997, 2000) suggest that country-level governance in terms of legal rules, and their enforcement quality presented to investors in a country is vital for the development of its financial markets and may enhance investors protection and effectiveness of governance structures (e.g. corporate governance, external finance type, and disclosure quality). In a country, where governance arrangements protect investors and they are thoroughly enforced, investors are prepared to provide capital to banks, increasing the liquidity and the value of capital markets. Bonetti et al. (2016) and Leuz et al. (2003) find that country-level governance quality

stimulates firms' disclosure practices. They argue that strong protection provided by country-level governance structures can restrain the ability of managers to acquire self-benefits of control that can reduce their motivations for opaque disclosure. Thus, banks that operate in countries with powerful governance institutions will be more keen to make significant efforts to adapt to new rules and regulations in addition to making sure that their financial disclosures are up to a high standard in order to secure the flow of critical resources. For instance, banks may choose to engage in increased risk disclosure in order to signal their superior performance to outside stakeholders. Consequently, a number of past research has reported results that support these expectations by showing that country-level governance quality (e.g. investor protection, extent of legal enforcement, and capital market characteristics) shapes firm disclosure incentives and explains differences in disclosure practices across countries (Bonetti et al., 2016; Burgstahler et al., 2006; Cumming, Hou, & Wu, 2014; DeFond, Hung, & Trezevant, 2007).

Empirically, the extant research reports a positive relationship between country-level governance and performance and/or disclosure (e.g. Cumming et al., 2014; Essen et al., 2013; Shen, Huang, & Hasan, 2012). For instance, Cumming et al. (2014) explore the impact of country-level governance on foreign cross-listed firms' valuation. Using a sample of 1,334 non-US companies from 48 countries over the period 1996–2008, Cumming et al. (2014) report that foreign cross-listed companies' valuation is contingent on home country governance. Specifically, this study reports that the valuation of cross-listed companies to be higher if those companies are cross-listed and/or from strongly governed environments compare to those companies that are non-cross-listed and/or from weakly governed environments. Similarly, using a sample of 1,005 foreign cross-listed companies in the US from forty countries between 1996 and 2005, Shi, Magnan, and Kim (2012) report that home country governance and ownership structures have a positive relationship with foreign cross-listed firms' disclosure level. In addition, Beltratti and Stulz (2012), and Barakat and Hussainey (2013) find a positive, but statistically insignificant relationship between country governance indicators and performance and/or risk disclosure. This leads to the study's final hypothesis, which is as follows:

H_3: There is a positive association between country governance indicators and MENA banks' risk disclosures.

5. Research design

5.1. Sample and data considerations

Our sample is selected from all listed commercial and Islamic banks in the MENA region with full data over eight fiscal years: 2006–2013. The total sample covers 100 banks listed in 14 MENA stock exchanges. This represents over 95% of the total market capitalisation of all the listed banks. We selected the period (2006–2013) for a number of reasons. First, our sample spans the 2007/2008 banking crisis period. Second, we begin with 2006 as the Basel accord became applicable in the MENA region from mid-2005. Third, we excluded a number of countries (i.e. Algeria, Iran, Libya, Mauritania, and Yemen) due to lack of data availability or language barriers. Specifically, some countries (e.g. Algeria) publish disclosures in French and we could not understand such disclosures. Finally, data is not available for a majority of our sample prior to year 2006. Board characteristics, ownership structure,

risk disclosure and financial data was collected from the sampled banks' annual reports (downloaded from the *Perfect Information Database* and bank websites), and the *Bankscope database*. Country-level macro-economic and governance variables are collected from the IMF world outlook and the World Bank's worldwide governance indicators databases, respectively. The final sample consists of 752 bank-year observations. The sample construction is presented in Table 1.

5.2. Definition of variables and model specification

We classify our variables into six main categories, as presented in Table 2 with their full definitions. First, our dependent variable is risk disclosure level (*RDI*). We developed and measured risk disclosure as follows. First, we identified a number of risk disclosure measures and scoring approach on the basis of the empirical work carried out by a large number of past studies (Barakat & Hussainey, 2013; Mokhtar & Mellett, 2013; Ntim et al., 2013; Savvides & Savvidou, 2012). Second, we identified some of the items from the relevant international and banking standards and regulations (i.e. IAS 32, IFRS 7, IFRS 9), and the Basel Accords (I, II, and III)). Finally, we supplemented these provisions further by first reading a sample of annual reports from each country to identify the "typical" risk disclosures that have been made in the past. We then put items obtained from these three major sources to form the detailed dimensions of our overall risk disclosure index. Thus, our risk disclosure index contains both voluntary and mandatory disclosures for which we have now indicated in the index.

Hence, we make use of a comprehensive RDI measure that takes into consideration a range of important risks across banks and six principal constructs that reflect detailed dimensions of the overall RDI measure (Ntim et al., 2013). These six constituents are: (i) financial risks, consisting of credit, liquidity, market, and capital risks, (ii) operational risks, and (iii) strategic risks, making a total 96 items. Appendix A2 displays the definitions and scoring procedure of all 96 items included in the RDI. This study uses a self-constructed risk disclosure index (RDI) to measure risk disclosure level presented in Appendix A2. Prior studies follow two approaches when it comes to measuring risk disclosures. On the one hand, some prior studies (Elshandidy et al., 2013; Elshandidy & Neri, 2015)

Table 1. Sample construction.

Country	Total banks	Banks selected	IBs obs	CBs obs	DBs obs	Full sample	percentage
Bahrain	11	11	44	16	24	84	11.17%
Egypt	11	11	13	40	20	73	9.71%
Jordan	12	12	13	75	3	91	12.10%
Iraq	9	2	0	16	0	16	2.13%
Kuwait	12	10	36	35	5	76	10.11%
Lebanon	6	6	0	28	16	44	5.85%
Morocco	4	1	0	0	8	8	1.06%
Oman	6	5	0	34	5	39	5.19%
Palestine	3	1	0	8	0	8	1.06%
Qatar	8	8	24	11	28	63	8.38%
Saudi Arabia	12	11	21	0	63	84	11.17%
Syria	9	2	6	8	0	14	1.86%
Tunisia	10	2	0	9	0	9	1.20%
UAE	19	18	32	39	72	143	19.02%
Total	**132**	**100**	**189**	**319**	**244**	**752**	**100.00%**

Table 2. Summary of definitions and operationalisation of variables.

Variables	Definitions and coding.
Panel A: Dependent variables (risk disclosure).	
RDI	Is the overall risk disclosure score determined depending on the un-weighted risk disclosure index and scoring criteria clarified in Appendix, comprising of 96 sub-items, which fairly capture the comparative weights of different risk categories. For the un-weighted risk disclosure index, each of the 96 items has a score ranging from 0 to 1 (i.e. 0 – risk item not disclosed by a bank; 1 – risk item disclosed by a bank). This un-weighted scoring procedure can result in a total potential score of 96; scaled to a value between 0% and 100%. For the weighted risk disclosure index, each of the 96 items has a score ranging from 0 to 2 (i.e. 0 – risk item not disclosed by a bank; 1 – risk item disclosed by a bank and contains past, future, good, bad and/or qualitative information; 2 – risk item disclosed by a bank and contains past, future, good, bad, qualitative and/or quantitative information). This weighted scoring procedure can result in a total potential score of 192; scaled to a value between 0% and 100%. These RDI items and the scoring procedure are contained in the Appendix.
Panel B: Sharia Supervisory Board (SSB).	
SSB	Is the total SSB characteristics score determined according to the un-weighted SSB index consisting of 7 provisions and scoring criteria are; SSB Existence = 1, if a bank has SSB board, 0 otherwise.; SSB Report = 1, if a bank has disclosed SSB report, 0 otherwise; Number of Member = 1, if a bank has disclosed number of SSB's member, 0 otherwise; SSB Meetings = 1, if a bank has disclosed number of SSB meetings, 0 otherwise; SSB Experience = 1, if a bank has disclosed number of SSB experience, 0 otherwise; Independent = 1, if SSB's members are independent from management, 0 otherwise; Total fees disclosed = 1, if a bank discloses SSB fees/ compensation, 0 otherwise. This un-weighted scoring procedure can result in a total potential score of 7; scaled to a value between 0% and 100%.
Panel C: Corporate governance (CG) ownership characteristics.	
GOWN	Percentage of governmental ownership with at least 5% to total bank ordinary shareholdings.
FOWN	Percentage of family ownership with at least 5% to the total bank ordinary shareholdings.
Panel D: Corporate governance (CG) board characteristics.	
BS	Number of directors in BODs.
DUAL	1, if the bank CEO and chairperson positions are held by same person, 0 otherwise.
NED_S	Percentage of non-executive directors to the total number of the bank BODs.
Panel E: Country level governance variables.	
PS	Country- level political strength and absence of violence/ terrorism score based on Kaufmann et al. (2010) which calculates the probability of the government to threatened by violent or illegal means, containing politically-inspired terrorism and violence in years 2006 until 2013. A higher score means better political strength and absence of violence/ terrorism.
CC	Country- level corruption governor score based on _ENREF_86 Kaufmann et al. (2010) which calculates the level to which abuse of bestowed public power to acquire a private benefit. A higher score means better control of corruption.
Panel F: Control variables.	
LNTA	Bank size measure by natural log of total assets.
ROA	Performance which measure by return on assets which are percentage of net income to total asset.
LIQ	Liquidity which is net loans to total assets.
COST	Operations efficiency which are percentage of cost to income.
CAR	The capital adequacy ratio.
LENG	Number of bank annual report pages.
CRIS	Financial crisis period
INFL	Inflation, which are consumer prices (annual %).
GDP	GDP per capita (current US$).

mainly rely on predefined words or sentences that reflect risk in annual reports. However, there has been little agreement to date on what set of predefined words can be employed to consistently identify, and fairly reflect information of all risk categories in banks. Also, there will be disclosure score bias if a bank concentrates on a certain category of risk and provides detailed information on it while failing to disclose other risk categories (Barakat & Hussainey, 2013). On the other hand, other prior studies (Barakat & Hussainey, 2013; Mokhtar & Mellett, 2013; Ntim et al., 2013; Savvides & Savvidou, 2012) rely on a constructed index to measure the level of risk disclosure; which fairly captures the comparative weights of different risk categories. As a consequence of these restrictions, we use

the index approach in coding our RDI. However, the index measurement method is also regularly criticised for being characteristically subjective (Marston & Shrives, 1991). Therefore, to lessen subjectivity, we followed these steps. First, two independent researchers coded a sample of 20 annual reports individually and their outcomes were compared. No significant differences emerged, with high coefficient of agreement (0.829), which is greater than the acceptable level in the social sciences discipline (reliability threshold ranges from 0.70 to 0.80) (Beattie, McInnes, & Fearnley, 2004; Marston & Shrives, 1991). Second, a single coder (the main coder) completed the coding of the remainder of the RDI afterwards. Third, the main coder re-coded a sample of ten annual reports randomly, and the findings were compared with his earlier original coding findings. Evidently, no major differences occurred, with high coefficient of agreement (0.947). Finally, we employed Cronbach's alpha to evaluate the internal consistency of the RDI. The Cronbach's alpha was satisfactorily high at 84 percent; noting that the acceptable threshold level for Cronbach's alpha is 70% (Elamer et al., 2018). Additionally, we created an alternative measure that directly measures the quality of risk disclosure. Specifically, we used a weighted index that aimed to measure the quality of risk disclosure. For the weighted risk disclosure index, each of the 96 items has a score ranging from 0 to 2 (i.e. 0 – risk item not disclosed by a bank; 1 – risk item disclosed by a bank and contains past, future, good, bad and/or qualitative information; 2 – risk item disclosed by a bank and contains past, future, good, bad, qualitative and/or quantitative information). This weighted scoring procedure can result in a total potential score of 192; scaled to a value between 0% and 100%. These RDI items and the scoring procedure are contained in Appendix A2.

Second, to examine H_1 to H_3, we have gathered data on multi-layer governance mechanisms. For instance, the presence of an *SSB* is used as a proxy for Islamic governance. It includes seven dimensions of the SSB's best practices, covering extensive areas of Islamic governance principles. The full items are included in Table 2. The SSB aims to measure the level to which banks willingly and evidently integrate Islamic governance principles into their operations, and consequently disclose them in their annual reports. We designated these provisions based on three criteria. First, we performed a wide search of the prior research that explores governance from an Islamic perspective and obtained SSB quality variables used in those studies (Al-Bassam & Ntim, 2017; Elghuweel, Ntim, Opong, & Avison 2017; Farook et al., 2011; Rahman & Bukair, 2013; Safieddine, 2009). Second, we obtained appropriate SSB provisions included in the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) standard on independence of Shariah supervisory board. Finally, we complemented these provisions with SSB variables that were acknowledged in an earlier survey of a sample of the sampled banks' annual reports.

Ownership structure variables include government ownership (*GOWN*) and family ownership (*FOWN*). Country-level governance variables include political strength and lack of violence/ terrorism (*PS*), and control of corruption (*CC*). Finally, to address issues relating to potential omitted correlated variables, we include a number of firm- and country-level control variables. The firm-level controls include, board structure variables namely; board size (*BS*), CEO duality (*DUAL*), and percentage of non-executive directors (*NEDs*). Other firm non-governance variables included as bank-level controls are bank size (*LNTA*), performance (*ROA*), liquidity (*LIQ*), operations efficiency (*COST*), capital adequacy (*CAR*), financial crisis (*CRIS*) and the length of the annual

report (*LENG*). Finally, the country-level controls include inflation (*INFL*), and GDP per capita (*GDP*). Due to space limitations, we did not develop direct theoretical and empirical links between these control variables and risk disclosure, but there are extensive prior empirical studies that suggest that they can impact on the level of bank risk disclosures (Abraham & Cox, 2007; Barakat & Hussainey, 2013; Beretta & Bozzolan, 2004; Cabedo & Tirado, 2004; Elshandidy et al., 2013; Elshandidy & Neri, 2015; Mokhtar & Mellett, 2013; Ntim et al., 2013; Savvides & Savvidou, 2012).

Following Elshandidy and Neri (2015) and Ntim et al. (2013), we use fixed-effects regression model to examine the impact of MLG (SSB, board structure, ownership structure, and country-level governance) on the level of risk disclosure. We chose fixed-effects regression model rather than random-effects regression model because of the Hausman test results indicated that it is more appropriate to do so. Therefore, our main regression model is identified as follows:

$$RDI_{it} = \alpha_0 + \beta_i \sum_{i=1}^{8} MLG_{it} + \sum_{i=1}^{9} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (1)$$

where,

RDI refers to risk disclosure index; *MLG* refers to multi-layer governance, consisting of the SSB, ownership structures (*FOWN* and *GOWN*); and country-level governance, including absence of violence (*PS*), and control of corruption (*CC*). *CONTROLS* refer to firm-level control variables, including board structures (*BS*, *DUAL,* and *NEDs*), non-governance variables (*LNTA*, *ROA*, *LIQ*, *COST*, *CAR*, *CRIS* and *LENG*), and country-level control variables (*INFL* and *GDP*). δ_{it} refers to the bank fixed-effects and year fixed-effects, ε_{it} refers to the error term, α_0 refers to the intercept, and β_i refers to the vectors of coefficient estimates.

6. Findings and discussion

6.1. Descriptive, univariate and bivariate analyses

Table 3 presents the descriptive statistics of the un-weighted and weighted risk disclosure indices[5] (*RDI and W-RDI,* respectively) and *SSB,* and each of the eight firm years investigated. Table 3 reveals a number of interesting findings. First, it shows that there is a high degree of variation in the risk disclosures between banks. For instance, *RDI* ranges from a minimum of 1 (1.04%) to a maximum of 84 (87.5%) with a standard deviation of 17.04, indicating a significant level of discretion regarding risk disclosure quality in the annual reports. The results (untabulated) indicate that banks provide more disclosures about capital risks (89.90%). This is followed by credit risks (69.04%) and strategic risks (55.36%). By contrast, market risks are the least disclosed type (48.30%). Within the MENA region, Kuwaiti banks, on average, are seen to disclose risks significantly more

[5]For the un-weighted risk disclosure index, each of the 96 items has a score ranging from 0 to 1 (i.e. 0 – risk item not disclosed by a bank; 1 – risk item disclosed by a bank). This un-weighted scoring procedure can result in a total potential score of 96; scaled to a value between 0% and 100%. For the weighted risk disclosure index, each of the 96 items has a score ranging from 0 to 2 (i.e. 0 – risk item not disclosed by a bank; 1 – risk item disclosed by a bank and contains past, future, good, bad and/or qualitative information; and 2 – risk item disclosed by a bank and contains past, future, good, bad, qualitative and/or quantitative information). This weighted scoring procedure can result in a total potential score of 192; scaled to a value between 0% and 100%. These RDI items and the scoring procedure are contained in Appendix A2.

Table 3. Summary descriptive statistics for *RDI* and *SSB* indices for all 752 bank years.

	All	2006	2007	2008	2009	2010	2011	2012	2013
The un-weighted risk disclosure index (RDI) (%)									
Mean	57.06	37.45	51.84	56.82	59.83	63.79	64.11	65.11	66.25
Median	62.50	37.50	55.21	60.42	63.54	65.63	65.63	66.67	67.71
STD	17.04	14.15	16.39	16.17	16.03	10.88	11.02	11.14	10.05
Min	1.04	6.25	6.25	1.04	7.29	26.04	25.00	19.79	19.79
Max	87.50	80.21	83.33	83.33	83.33	83.33	81.25	87.50	87.50
The weighted risk disclosure index (W-RDI) (%)									
Mean	41.64	23.43	36.45	40.74	42.74	45.89	46.15	47.13	47.74
Median	44.79	21.88	39.58	43.75	45.57	46.61	47.92	48.44	48.44
STD	12.58	10.53	13.01	12.56	12.84	7.91	7.81	8.07	7.54
Min	1.04	3.65	3.65	1.04	3.65	14.58	14.06	9.90	9.90
Max	70.31	55.21	66.67	66.67	67.71	65.63	61.46	70.31	70.31
SSB index									
Mean	1.43	1.00	1.17	1.25	1.51	1.51	1.45	1.51	1.67
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	1.87	1.60	1.77	1.81	1.94	1.96	1.94	2.01	2.12
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	7.00	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

Notes: This Table reports descriptive statistics of levels of compliance with un-weighted risk disclosure index (*RDI*), weighted risk disclosure index (*W-RDI*), and *Sharia* supervisory board index (*SSB*) from 2006 to 2013.

(64.88%) than banks in the other countries followed by Saudi banks (64.81%) and Oman (62.79%). These results reflect a commitment to IFRS and Basel accords regulation and requirements (Farook et al., 2011). By contrast, Iraqi banks provides the lowest level of risk disclosure in the region. Second, and consistent with prior risk disclosure studies (Ntim et al., 2013; Rajab & Handley-Schachler, 2009), there has been a continuous increase in risk disclosure over time. For instance, the average bank disclosed 35.95 (37.45%), 47.77 (51.84%), 54.55 (56.82%), 57.44 (59.83), 61.24 (63.79%), 61.55 (64.11%), 62.51 (65.11%), and 63.60 (66.25%) of the items in the disclosure index score (percentage) – in 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013, respectively. Also, similar consistent trends are observable with respect to the weighted disclosure index score and the SSB, demonstrating that the 2007/08 global financial crisis has changed the focus of risk disclosure and SSB in MENA banks.

Finally, the banks significantly increased disclosures about risks during the 2007/08 financial crisis compared to the pre-2007/08 period and there was a general increasing trend in risk disclosure behaviour over time after the 2007/08 financial crisis. This increase was more observable after 2009. For example, the average bank scored 35.95 (37.45%) in 2006 compared with 7.77 (51.84%), 54.55 (56.82%), 57.44 (59.83), 61.24 (63.79%), 61.55 (64.11%), 62.51 (65.11%), and 63.60 (66.25%) in 2007, 2008, 2009, 2010, 2011, 2012 and 2013, respectively. These results shed light on the importance of risk disclosure for management and stakeholders, especially after Basel II made such risk disclosure compulsory in most of the sampled countries after the 2007/08 financial crisis.

Table 4 shows the summary descriptive statistics of all the other independent and control variables included in our analysis. In general Table 4 shows a wide spread in the distribution of all the variables. For example, *GOWN* ranges from a minimum of 0.00% to a maximum of 89.06% with governments holding an average of 15.51% ownership in the typical MENA bank. *FOWN* ranges from 0.00% to 87.00%, suggesting that despite the recommendations by the World Bank and OECD regarding the need for greater dispersion in ownership structure, the ownership structure of MENA banks are

Table 4. Summary descriptive statistics of the independent and control variables for all 752 observations.

Variables	*N*	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Independent (Corporate governance (CG)/ ownership characteristics variables).						
GOWN (%)	752.00	15.51	6.25	20.85	0.00	89.06
FOWN (%)	752.00	7.74	0.00	14.23	0.00	87.00
Panel B: Independent (Country Level-governance variables)						
PS	744.00	−0.13	−0.31	0.93	−2.83	1.22
CC	744.00	0.23	0.24	0.70	−1.58	1.72
Panel C: Control variables						
BS	752.00	9.44	9.00	1.90	5.00	15.00
DUAL	750.00	0.20	0.00	0.40	0.00	1.00
NED_S (%)	752.00	89.31	90.90	18.42	0.00	100.00
LNTA	752.00	15.63	15.65	1.60	0.30	21.09
ROA	752.00	0.02	0.02	0.04	−0.52	0.24
LIQ (%)	751.00	51.60	54.76	16.57	0.00	85.37
COST (%)	745.00	42.36	39.39	30.51	−365.63	284.00
CAR (%)	707.00	20.25	17.24	14.39	9.26	204.41
LENG	750.00	99.22	91.50	48.62	8.00	324.00
INFL	736.00	5.39	4.00	4.93	−10.10	53.20
GDP	732.00	23426.34	19250.90	23200.92	5.00	93714.10

Notes: Variables are defined as follows: government ownership (*GOWN*), family ownership (*FOWN*), board size (*BS*), CEO duality (*DUAL*), percentage of non-executives directors (NED_S), political strength and absence of violence/ terrorism (*PS*), corruption control (*CC*), bank size (*LNTA*), performance (*ROA*), liquidity (*LIQ*), operations efficiency (*COST*), capital adequacy (*CAP*), annual reports length (LENG), inflation (*INFL*), and GDP per capita (*GDP*). Table 2 fully defines all the variables used.

still fairly concentrated. A majority of the banks in our sample are profitable with a mean profitability ratio of 2%. Table 4 also shows that 80% of the banks in our sample separate the roles of CEO and chairman, and 89% of bank boards are made up of non-executive directors, which is consistent with the recommendations of CG codes in MENA countries. The *BS* ranges from 5 to 15 directors with a mean of 9 directors. Finally, the values of MLG, as well as the control variables, as shown in Table 4, suggest wide variability in our sample, and thereby minimising any possibilities of sample selection bias.

Table 5 presents the correlation matrix for the variables used in our regression analysis to test for multicollinearity. We report both the Pearson's parametric and Spearman's non-parametric coefficients for robust results, and, noticeably, the magnitude and direction of both coefficients are similar. The values indicate that no serious non-normality problems exist. As expected, *RDI* quality scores are positively and significantly correlated with the following control variables: *LNTA*, *LIQ*, *LENG*, *GOWN*, *FOWN*, *NEDS*, *SSB*, *PS*, *CC*, and *GDP*. By contrast, *RDI* is negatively and significantly associated with the following control variables: *COST*, *DUAL*, and *INFL*. These findings offer support for the validity of our disclosure index.

6.2. Regression analyses

Table 6 reports the results of the fixed-effects regression analysis of the impact of MLG on the level of bank risk disclosures, namely: (i) Islamic governance (SSB); (ii) bank-level governance (i.e. ownership structures); and (iii) country-level governance (e.g. absence of violence and control of corruption). Table 6 further summarises the results of the regression analysis for seven different models. First, the models are statistically significant and explain 41%, 55%, 25%, 43%, 56%, and 50% of the variations in the level of bank risk disclosures.

Table 5. Pearson's and Spearman's correlation matrices of the variables for all 752 observations.

Variable	RDI	LNTA	ROA	LIQ	COST	CAR	LENG	GOWN	FOWN	BS	DUAL	NED_S	SSB	PS	CC	INFL	GDP
RDI		0.50**	−0.07	0.37**	−0.12**	−0.13**	0.47**	0.27**	0.06	0.06	−0.16**	0.25**	0.11**	0.24**	0.30**	−0.36**	0.16**
LNTA	0.55**		0.00	0.25**	−0.18**	−0.11**	0.31**	0.33**	−0.01	0.10**	−0.01	0.13**	0.18**	0.24**	0.20**	−0.21**	0.22**
ROA	−0.03	0.05		0.08*	−0.23**	0.09*	−0.10**	0.04	0.03	0.03	−0.02	−0.04	−0.12**	0.11**	0.08*	0.03	0.11**
LIQ	0.33**	0.28**	0.20**		−0.17**	−0.19**	−0.07	0.31**	−0.01	−0.13**	−0.27**	0.24**	0.04	0.64**	0.60**	−0.14**	0.32**
COST	−0.23**	−0.41**	−0.45**	−0.34**		0.16**	0.04	−0.13**	−0.02	−0.02	0.08*	−0.08*	0.03	−0.20**	−0.14**	0.04	−0.23**
CAR	−0.06	−0.06	0.13**	0.01	−0.12**		−0.17**	0.02	−0.09*	−0.17**	0.02	−0.12**	0.10**	0.01	0.02	−0.08*	0.00
LENG	0.53**	0.33**	−0.19**	−0.03	0.10**	−0.21**		0.02	0.04	0.28**	0.13**	0.14**	0.12**	−0.21**	−0.13**	−0.21**	−0.19**
GOWN	0.30**	0.35**	0.14**	0.39**	−0.24**	0.13**	0.03		−0.19**	0.01	−0.17**	0.11**	0.09*	0.28**	0.32**	−0.14**	0.13**
FOWN	0.12**	0.02	0.05	0.01	0.05	−0.08*	0.14**	−0.13**		−0.01	−0.12**	0.00	−0.08*	−0.08*	−0.08*	0.01	−0.14**
BS	0.07	0.09*	−0.02	−0.14**	0.05	−0.19**	0.29**	0.04	0.09*		0.13**	0.02	−0.06	−0.22**	−0.18**	0.00	−0.21**
DUAL	−0.16**	−0.04	−0.09*	−0.28**	0.09*	−0.04	0.08*	−0.18**	−0.11**	0.14**		−0.45**	−0.19**	−0.20**	−0.21**	0.12**	0.02
NED_S	0.14**	0.04	0.02	0.32**	−0.07	−0.03	0.09*	0.15**	−0.03	−0.05	−0.47**		0.12**	0.20**	0.18**	−0.16**	0.04
SSB	0.13**	0.35**	0.00	0.10**	−0.09*	0.07	0.15**	0.12**	−0.12**	−0.05	−0.21**	0.07*		0.04	0.12**	−0.21**	0.15**
PS	0.18**	0.25**	0.24**	0.62**	−0.41**	0.12**	−0.15**	0.31**	−0.12**	−0.25**	−0.19**	0.31**	0.11**		0.77**	−0.17**	0.57**
CC	0.20**	0.15**	0.22**	0.54**	−0.36**	0.17**	−0.08*	0.31**	−0.13**	−0.21**	−0.19**	0.26**	0.15**	0.74**		−0.23**	0.52**
INFL	−0.34**	−0.20**	0.01	−0.20**	0.07	−0.25**	−0.23**	−0.19**	−0.04	0.04	0.18**	−0.19**	−0.25**	−0.22**	−0.27**		0.02
GDP	0.23**	0.33**	0.22**	0.37**	−0.34**	0.02	−0.08*	0.18**	−0.18**	−0.20**	−0.08*	0.18**	0.30**	0.52**	0.45**	−0.03	

Notes: The upper right half of the Table shows Pearson's parametric correlation coefficients, whereas the bottom left half of the Table contains Spearman's non-parametric correlation coefficients. **, and * denote correlation is significant at the 1%, and 5% level, respectively (two-tailed tests). Variables are defined as follows: risk disclosure quality score (*RDI*), bank size (*LNTA*), performance (*ROA*), liquidity (*LIQ*), operations efficiency (*COST*), capital adequacy (*CAP*),annual reports length (LENG), government ownership (*GOWN*), family ownership (*FOWN*), board size (*BS*), CEO duality (*DUAL*), percentage of non-executives directors (NED_S), *Sharia* supervisory board (*SSB*), political strength and absence of violence/ terrorism (*PS*), corruption control (*CC*), inflation (*INFL*), and GDP per capita (*GDP*). Table 2 fully defines all the variables used.

Table 6. The impact of multi-layers governance on bank risk disclosure (*RDI*).

	Dependent variable: Bank's un-weighted risk disclosure (RDI)						
Variables	(1) Full sample	(2) IBs	(3) CBs	(4) DBs	(5) GMM	(6) 3SLS	(7) G2SLS
Panel A: Independent: Multi-layers governance *variables*							
Lagged RDI					17.43***		
					(0.000)		
SSB	3.04***	3.74***		4.65***	6.71***	3.07***	3.06***
	(0.002)	(0.000)		(0.000)	(0.000)	(0.002)	(0.002)
GOWN	2.58**	−0.66	0.14	2.15**	3.41***	3.07***	1.91*
	(0.011)	(0.510)	(0.886)	(0.031)	(0.001)	(0.002)	(0.064)
FOWN	2.26**	2.61**	2.36**	−1.49	0.64	3.51***	3.04***
	(0.024)	(0.012)	(0.019)	(0.139)	(0.524)	(0.000)	(0.002)
PS	−1.70	0.58	−1.71*	−1.94*	−2.81***	−4.20***	−2.07**
	(0.089)	(0.561)	(0.089)	(0.053)	(0.006)	(0.000)	(0.038)
CC	3.32***	2.53**	0.94	0.17	4.47***	2.18**	4.39***
	(0.001)	(0.012)	(0.348)	(0.863)	(0.000)	(0.030)	(0.000)
Panel B: Control variables							
Intercept	−0.04	0.33	−2.13**	−3.57***	−3.52***	−1.17	−1.02
	(0.965)	(0.742)	(0.034)	(0.000)	(0.001)	(0.241)	(0.309)
BS	1.99**	0.77	1.94*	3.31***	1.70*	2.59***	1.06
	(0.047)	(0.440)	(0.054)	(0.001)	(0.091)	(0.009)	(0.290)
DUAL	−1.80*	−1.63	−0.13	−0.06	−2.12**	−3.69***	−0.15
	(0.072)	(0.104)	(0.897)	(0.955)	(0.037)	(0.000)	(0.879)
NEDS	2.98***	2.55**	0.19	2.42**	2.54**	1.33	2.53**
	(0.003)	(0.012)	(0.850)	(0.023)	(0.013)	(0.185)	(0.011)
LNTA	5.13***	−0.20	3.14***	5.15***	1.98*	4.92***	2.34**
	(0.000)	(0.842)	(0.002)	(0.000)	(0.051)	(0.000)	(0.019)
ROA	−0.48	−0.78	0.72	4.27***	3.54***	0.33	0.00
	(0.631)	(0.437)	(0.470)	(0.000)	(0.001)	(0.745)	(0.997)
LIQ	1.79*	0.55	0.53	1.74*	5.21***	5.26***	3.03***
	(0.074)	(0.586)	(0.599)	(0.084)	(0.000)	(0.000)	(0.002)
COST	−1.48	−2.46**	0.03	−1.34	−2.47**	−3.13***	−1.77*
	(0.139)	(0.015)	(0.979)	(0.181)	(0.015)	(0.002)	(0.077)
CAR	−1.89*	0.34	−1.89*	−0.95	−1.95*	−0.40	−1.26
	(0.059)	(0.735)	(0.060)	(0.342)	(0.054)	(0.691)	(0.208)
LENG	8.99***	6.52***	3.08***	4.60***	4.84***	9.19***	9.12***
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
INFL	2.34**	0.53	1.30	2.10**	7.80***	2.86***	1.35
	(0.019)	(0.596)	(0.195)	(0.037)	(0.000)	(0.004)	(0.177)
GDP	−0.89	−1.20	−0.30	−1.22	−1.95*	−4.48***	−0.29
	(0.374)	(0.232)	(0.766)	(0.222)	(0.054)	(0.000)	(0.774)
CRIS	5.27***	4.71***	3.68***	6.83***	6.51***	4.31***	5.49***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Fixed effect	Bank	Bank	Bank	Bank	Bank	Bank	Bank
F- value(χ^2)	68.88***	29.88***	20.32***	37.45***	906.51***	866.90***	1125.19***
Overall R^2	0.4126	0.5506	0.2526	0.4272		0.5597	0.5049
No. of obs	682	183	263	236	594	682	682

Notes: *P*-values are in parentheses. ***, **, and *mean significance at the 1%, 5% and 10% levels, respectively. Variables are defined as follows: risk disclosure quality score (*RDI*), *Sharia* supervisory board (*SSB*), government ownership (*GOWN*), family ownership (*FOWN*), board size (*BS*), CEO duality (*DUAL*), percentage of non-executives directors (NED_S), political strength and absence of violence/ terrorism (*PS*), corruption control (*CC*), bank size (*LNTA*), performance (*ROA*), liquidity (*LIQ*), operations efficiency (*COST*), capital adequacy (*CAP*),annual reports length (*LENG*), inflation (*INFL*), GDP per capita (*GDP*), and crisis (*CRIS*). Table 2 fully defines all the variables used.

Second and in general, our results suggest that MLG is significant in explaining differences in risk disclosure quality. Third, and specifically, we start by investigating whether the *SSB* can have an effect on the level of bank risk disclosures (*RDI*). The coefficient of the *SSB* on the *RDI* in Model 1 of Table 6 is statistically significant and positive, indicating that H_1 is accepted empirically. The policy suggestion is that banks that have an SSB may put pressure on bank management to engage in increased levels of risk disclosures, as a signal of their monitoring power and effectiveness in achieving *Sharia* compliance. Theoretically,

the results are consistent with the expectations of our RDT framework. This result implies that engaging in good *SSB* practices can enhance bank legitimacy (e.g. reputation and image) by improving the transparency of risk information that is disclosed (e.g. market, operational, and strategic risks). The result also indicates that complying with good *SSB* practices through greater risk disclosure activities can not only increase the legitimacy a bank (Mollaha & Zaman, 2015; Suchman, 1995), but also present opportunities to obtain important resources (Ntim et al., 2013; Pfeffer & Salancik, 1978). In addition, our results also offer empirical support for the findings of the few prior studies that suggest that *SSB* can have a positive effect on disclosure and performance (Farook et al., 2011; Mollaha & Zaman, 2015; Rahman & Bukair, 2013).

Fourth, at the bank-level, we investigate whether ownership structures can have an impact on the *RDI*. Ownership structures include two ownership (governmental ownership – *GOWN,* and family ownership – *FOWN*) variables, respectively (Model 1 of Table 6). The results show that governmental ownership (*GOWN*), and family ownership (*FOWN*) are positively associated with the *RDI*. Similarly, the results also offer support for our RDT framework. For instance, the positive relationship among governmental ownership (*GOWN*), family ownership (*FOWN*), and the *RDI* is in line with the findings of prior studies (Alhazaimeh et al., 2014; Ali et al., 2007; Cascino et al., 2010; Chen et al., 2008; Eng & Mak, 2003; Ghazali, 2007; Ntim et al., 2013; Ntim & Oseit, 2011; Wan-Hussin, 2009; Wang, 2006). This result implies that powerful shareholders (i.e. family and government shareholders) have both the power and the incentives to monitor insiders' behaviour to safeguard minority rights and bank reputation (Cascino et al., 2010). Additionally, these results suggest that banks may engage in increased risk disclosures in order to signal their compliance with government initiatives and standards that can enable them to gain access to important resources, such as finance and business contracts. This, therefore, leads us to accept H_2, which suggests that there is a positive relationship between ownership concentration and MENA banks' risk disclosures.

Fifth, at the country-level, we examine whether country-level governance mechanisms ((i.e. control of corruption (*CC*) and political stability and absence of violence (*PS*)) can have an impact on the *RDI*. The coefficient of the control of corruption *(CC)* on the *RDI* in Model 1 of Table 6 is statistically significant and positive, whilst political stability and absence of violence (*PS*) have a negative, but insignificant association with the level of bank risk disclosures. The policy suggestion is that banks might be driven by institutional pressures (i.e. *CC*), especially in better-governed countries to engage in increased risk disclosures. Theoretically, the results are consistent with the expectations of our RDT framework. This result implies that better country-level governance in terms of control of corruption may enhance investor protection, as well as improves governance effectiveness, and thereby impact positively on the *RDI*. In addition, our results are consistent with those of the few prior studies that suggest that country-level governance mechanisms can have a positive effect on risk disclosure and performance (e.g. Cumming et al., 2014; Essen et al., 2013; Shen et al., 2012). Hence, our results suggest that country-level governance in terms of control of corruption *(CC)* may play a complementary governance role in reinforcing CG–risk disclosure nexus, especially in better-governed environments. In contrast, in poorly-governed environments in terms of political stability and absence of violence (*PS*), firm-level governance plays a stronger bonding governance role to mitigate increased agency costs in such environments in order to gain legitimacy.

Finally and with regard to the other control variables, we found that *LNTA*, *LIQ*, and *LENG* are statistically significant and positively related to risk disclosure, implying that MENA banks with high *LNTA*, *LIQ*, and *LENG* are more likely to make more significant risk disclosures. This is in line with the findings of Elshandidy et al. (2013), Elzahar and Hussainey (2012), Ntim et al. (2013), and Oliveira et al. (2011). In contrast, we find a negative, but insignificant relation between *ROA*, *COST*, *CAR* and *GDP*, and risk disclosure.

6.3. Additional analyses

We conduct a number of additional tests to ascertain the robustness of our results. First, our sample consists of Islamic banks, commercial banks, and dual banks. Therefore, to ascertain how MLG operates among the three categories, we re-ran equation (1) by separating the sample into three sub-samples: (i) Islamic banks (IBs); (ii) commercial banks (CBs); and (iii) dual banks (DBs). The results relating to Models 2, 3, and 4 (*RDI*) are reported in Table 6 and those relating to Models 2, 3, and 4 (*W-RDI*) are reported in Table 7, respectively. These results are principally similar with slight differences in the significance levels, as reflected in the magnitude of the coefficients'. Nevertheless, there is a negative impact of *GOWN* on risk disclosure, although this relation is statistically insignificant in IBs. Also, the results show that *FOWN* and *CC* have stronger impact with respect to IBs compared with CBs and DBs. Finally, the *BS* has stronger impact with respect to DBs compared with CBs and IBs. This may be because dual banks tend to be bigger, have more lines of business and activities, and have larger boards, which may increase diversity in terms of expertise and knowledge, which can also affect the level of risk disclosure.

Second, our sample covered the 2006–2013 period. Therefore, in order to ascertain how MLG systems operated during the GFC, we include a dummy variable (*CRIS*) to measure the impact of GFC period (i.e. 2007 & 2008). The results relating to *CRIS* contained in Table 6 show that the coefficient on *CRIS* is positive, indicating that GFC period had a positive impact on risk disclosures made by MENA banks. Third, we test the robustness of our results by re-regressing equation (1) using weighted *RDI* (*W-RDI*) as an alternative risk disclosure index. The results, reported in Table 7, are to great extent similar to those results reported in Table 6 with slight sensitivity in the variables' levels of significance. Therefore, these findings indicate that our results are robust whether the *RDI* is an unweighted or weighted index.

Fourth, and to test for the presence of any potential endogeneity problems, which are argued to be a common problem in CG studies (Elamer & Benyazid, 2018; Elshandidy & Neri, 2015; Larcker & Rusticus, 2010; Mollaha & Zaman, 2015; Ntim et al., 2013; Ntim & Soobaroyen, 2013), we conducted the following three different tests. First, we employed three-stage least squares (*3SLS*) estimations (Larcker & Rusticus, 2010; Zellner & Theil, 1962). The *3SLS* methodology consists of three steps. First, MLG instruments are generated by using the predicted parts from the first-stage. Specifically, we conjecture that MLG variables (i.e. *SSB*, *BS, DUAL*, *NEDs*, *FOWN*, and *GOWN*) will be determined by all the control (exogenous) variables specified in equation (1). Second, covariance matrices for MLG instrumental values based on the residuals are estimated. Third, generalised least square regression is conducted by using the covariance matrices estimated in the second stage (Dennis & Taisier, 2014; Mollaha & Zaman, 2015). Therefore, our 3SLS

Table 7. The impact of multi-layers governance on bank risk disclosure (*W-RDI*).

Variables	*Dependent variable: Bank's weighted risk disclosure (W-RDI)*						
	(1) Full sample	(2) IBs	(3) CBs	(4) DBs	(5) GMM	(6) 3SLS	(7) G2SLS
Panel A: Independent : Multi-layers governance *variables*							
Lagged W-RDI					22.64***		
					(0.000)		
SSB	4.54***	3.61***		5.48***	4.96***	2.84***	2.74***
	(0.000)	(0.002)		(0.000)	(0.000)	(0.005)	(0.006)
GOWN	0.01	−0.75	0.17	0.90	4.13***	3.36***	1.59
	(0.996)	(0.457)	(0.865)	(0.367)	(0.000)	(0.001)	(0.113)
FOWN	1.69*	1.50	1.75*	−1.48	1.76*	2.99***	2.44**
	(0.093)	(0.135)	(0.082)	(0.140)	(0.082)	(0.003)	(0.015)
PS	−2.21**	0.16	−1.68*	−3.05***	−0.68	−4.29***	−2.41**
	(0.027)	(0.874)	(0.095)	(0.003)	(0.498)	(0.000)	(0.016)
CC	3.29***	1.22	1.50	−0.49	2.79***	2.28**	4.74***
	(0.001)	(0.224)	(0.134)	(0.628)	(0.006)	(0.022)	(0.000)
Panel B: Control variables							
Intercept	−0.59	0.16	−1.38	−4.34***	6.11***	−1.71*	−1.84*
	(0.556)	(0.871)	(0.171)	(0.000)	(0.000)	(0.087)	(0.066)
BS	2.06**	0.66	2.07**	3.47***	1.42	2.76***	4.09***
	(0.040)	(0.512)	(0.039)	(0.001)	(0.160)	(0.006)	(0.000)
DUAL	−2.39**	−1.64	−0.97	−0.54	−2.05**	−2.80***	−0.79
	(0.017)	(0.104)	(0.335)	(0.593)	(0.043)	(0.005)	(0.432)
NEDS	2.95***	2.24**	1.01	0.25	4.32***	1.40	2.60***
	(0.003)	(0.027)	(0.313)	(0.802)	(0.000)	(0.162)	(0.009)
LNTA	4.69***	−0.23	1.74*	5.49***	2.22**	4.33***	2.38**
	(0.000)	(0.819)	(0.084)	(0.000)	(0.029)	(0.000)	(0.017)
ROA	−0.51	−1.01	0.44	4.45***	−2.22**	−0.54	−0.17
	(0.612)	(0.314)	(0.662)	(0.000)	(0.029)	(0.591)	(0.866)
LIQ	1.77*	0.66	0.14	1.91*	5.41***	4.74***	3.07***
	(0.078)	(0.512)	(0.886)	(0.058)	(0.000)	(0.000)	(0.002)
COST	−1.83*	−2.55**	−0.20	1.40	−0.67	−3.29***	−1.90*
	(0.068)	(0.012)	(0.843)	(0.162)	(0.506)	(0.001)	(0.058)
CAR	−1.91*	0.19	−2.64***	−0.68	−1.66	−0.22	−1.03
	(0.056)	(0.850)	(0.009)	(0.498)	(0.100)	(0.822)	(0.303)
LENG	7.33***	5.62***	2.52**	2.82***	4.36***	6.76***	7.06***
	(0.000)	(0.000)	(0.013)	(0.005)	(0.000)	(0.000)	(0.000)
INFL	4.17***	1.52	2.27**	3.04***	8.11***	2.00**	2.95***
	(0.000)	(0.132)	(0.024)	(0.003)	(0.000)	(0.046)	(0.003)
GDP	−1.81*	−1.67*	−0.14	−2.05**	−0.28	−4.63***	−0.14
	(0.070)	(0.097)	(0.892)	(0.041)	(0.782)	(0.000)	(0.889)
CRIS	7.62***	5.96***	8.16***	4.89***	7.32***	6.36***	7.85***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Fixed effect	Bank	Bank	Bank	Bank	Bank	Bank	Bank
F- value (χ^2)	70.06***	26.75***	20.44***	38.76***	602.93***	784.71***	1108.80***
Overall R^2	0.3462	0.5112	0.2089	0.2820		0.5350	0.4737
No. of obs	682	183	263	236	594	682	682

Notes: *P*-values are in parentheses. ***, **, and *mean significance at the 1%, 5% and 10% levels, respectively. Variables are defined as follows: risk disclosure quality score (*RDI*), *Sharia* supervisory board (*SSB*),government ownership (*GOWN*), family ownership (*FOWN*), board size (*BS*), CEO duality (*DUAL*), percentage of non-executives directors (NED_S), political strength and absence of violence/ terrorism (*PS*), corruption control (*CC*), bank size (*LNTA*), performance (*ROA*), liquidity (*LIQ*), operations efficiency (*COST*), capital adequacy (*CAP*),annual reports length (*LENG*), inflation (*INFL*), GDP per capita (*GDP*), and crisis (*CRIS*). Table 2 fully defines all the variables used.

model is identified as follows:

$$RDI_{it} = \alpha_0 + \hat{\beta}_i \sum_{i=1}^{8} MLG_{it} + \sum_{i=1}^{9} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (2)$$

where,

Everything else remains unchanged as identified in equation (1) except that, we use the covariance matrices from the second step estimation as instruments for the eight MLG variables. The results are reported under Model 6 of Table 6. These results are mostly similar to those reported under Model 1 of Table 6, suggesting that our results are robust to possible endogeneity problems that may arise from omitted factors. The minor increase in the coefficients' of the MLG variables in Model 6 of Table 6 compared to those under Model 1 of Table 6 are in line with previous studies, which indicate that instrumented variables of MLG variables are likely to predict risk disclosure more powerfully than their un-instrumented variables (Larcker & Rusticus, 2010). Secondly, we use *G2SLS* (generalised two-stage-least-squares fixed-effects within estimator) to re-estimate our results (Baltagi & Deng, 2015). The results reported under Model 7 of Table 6 are to a great extent similar to those reported under Model 1 of Table 6 and those in Model 1 of Table 7, suggesting that our results are robust to possible endogeneity problems.

Finally, to control for potential unobserved heterogeneity between *RDI* and the independent variables, we re-estimate our findings by using a dynamic panel GMM estimator following Wintoki, Linck, and Netter (2012) in the corporate governance domain. It deals with the endogeneity problem in a number of ways. First, it aims to eliminate or significantly alleviate most of the endogeneity problems that may create links between our risk disclosure index and many un-observed bank characteristics. Second, this approach also improves the issue of regular inherent changes in the *RDI* indices over time (e.g. Ntim, Lindop, Osei, & Thomas, 2015; Schultz, Tan, & Walsh, 2010; Wintoki et al., 2012). More specifically, the GMM approach can eliminate the unobserved heterogeneity, which can force a spurious correlation between our explanatory variables (*MLG*) and past values of our dependent variable (*RDI*). Finally, the GMM approach is robust to autocorrelation and heteroscedasticity between present and historical values. Specifically, it uses historical values of the dependent and independent variables as effective instruments to appropriately control the existence of potential simultaneous and dynamic endogeneities. Thus, we estimate a dynamic two-step GMM estimator to control for the two-way causality. This unique estimator has the capacity to sufficiently account for the presence of several sources of endogeneities, including those that may be due to unobservable bank-specific factors, heterogeneity, dynamic endogenous regressors, possible omitted variables bias, heteroscedasticity and simultaneity by allowing all the explanatory variables (i.e. the MLG and all control variables) to be considered as endogenous (e.g. Arellano & Bond, 1991; Arellano & Bover, 1995; Schultz et al., 2010; Wintoki et al., 2012; Wooldridge, 2010). We estimate a GMM model as follows:

$$RDI_{it} = \alpha_1 + k_1 RDI_{it-1} + \beta X_{it} + \gamma Z_{it} + \delta_{it} + \varepsilon_{it} \quad (3)$$

where,

RDI refers to a proxy of risk disclosure level for bank *i* during year *t*. X_{it} denotes all explanatory variables (*MLG*) that include *Sharia* supervisory board (*SSB*), board size (*BS*), CEO duality (*DUAL*), percentage of non-executive directors (*NEDs*), government ownership (*GOWN*), family ownership (*FOWN*), political strength and lack of violence/terrorism (*PS*), and control of corruption (*CC*). Z_{it} includes bank size (*LNTA*), performance (*ROA*), liquidity (*LIQ*), operations efficiency (*COST*), capital adequacy (*CAR*), the

length of the annual report (*LENG*), inflation (*INFL*), and GDP per capita (*GDP*). δ_{it} refers to the unobserved bank-year specific fixed-effects, and ε_{it} refers to the error term.

The GMM system estimator regression results are reported under Model 5 of Table 6 and under Model 5 of Table 7. The statistical tests (AR_1, AR_2, *Hansen/Sargan tests*) confirm the validity of our model and do support both the absence of second-order serial correlation and the instruments' validity. These results are also similar to those reported in Model 1 of Table 6, implying that our results appear to be robust to different endogeneity problems.

Finally, a potential concern regarding our results so far is that risk disclosure differences may be driven by bank ownership concentration or driven by banks operating in GCC countries and non-GCC countres. To mitigate this concern, we classified the banks in our sample into high (low) family ownership and GCC (non-GCC) sub-samples. The (untabulated) results of these additional tests showed that ownership type and country-level governance (GCC vs. non-GCC) moderate the MLG–risk disclosure nexus. Overall, the additional analyses show that our findings are robust to potential endogeneity problems, unobservable bank-specific factors, sub-samples, and alternative risk disclosure measures.

7. Summary and conclusion

Although a number of past studies have examined the antecedents of corporate risk disclosures, a closer examination of this literature reveals several limitations. First and despite the pivotal roles of financial institutions to the smooth functioning of the global economy, such studies have largely concentrated non-financial corporations to the neglect of financial ones, such as banks. Second and although past studies have demonstrated that several corporate decisions, such as disclosure are mainly a function of corporate boards, managers and owners, a large number of the existing studies have surprisingly been largely descriptive in orientation with limited/no theoretical underpinning, and often simply investigating how traditional firm-level characteristics, such as firm size and industry affect the extent of corporate risk disclosures. Third, a few of the existing risk disclosure studies have admittedly examined the role of governance in the extent of corporate risk disclosures. However, such studies have mainly focused on examining how individual governance measures (especially) at the firm-level can impact on the extent of corporate risk disclosures primarily using samples of firms from single countries. By contrast, studies examining how and why a layer of multiple governance mechanisms, especially country-level governance structures may explain observable differences in the levels of risk disclosures observed across different firms in different countries are rare. Fourth and of closer relevance to our current study, the existing risk disclosure studies have been conducted primarily in the developed economies in America and Europe to the neglect of emerging, but equally important ones in Africa, Asia and the Middle East. These limitations arguably impair a complete understanding of the drivers of corporate risk disclosures, especially in emerging economies, such as those in the MENA region.

Against this background, this study has sought to extend, as well as make a number of new contributions to the extant literature by examining the impact of banks' multi-layer governance structures on their risk disclosures using a sample of banks from 14 countries in the MENA region over the 2006–2013 period. Our key findings are as follows. First, our

multivariate analysis results suggest that our MLG is significant in explaining differences in risk disclosure levels. Specifically, our results suggest that the presence of a *Sharia* Supervisory Board (*SSB*) is positively associated with the level of risk disclosure by banks. Secondly, at the bank-level, we find that ownership structure (governmental ownership and family ownership) has a positive effect on the level of risk disclosures by banks. At the country-level, our evidence suggests that control of corruption has a positive effect on the level of bank risk disclosure, whilst political stability and the absence of violence have a negative, but insignificant association with the level of bank risk disclosures. Collectively, these results suggest that strong governance arrangement at both country-level and bank-level can help in improving bank financial reporting quality in terms of risk disclosure. These results also provide empirical support for the predictions of the resource dependence theory perspective. Specifically, the resource dependence perspective (Pfeffer & Salancik, 1978; Zona, Gomez-Mejia, & Withers, 2015) suggests that the role of MLG is to secure critical resources by encouraging banks to actively engage in risk disclosures, and thus, to decrease market uncertainty and dependence. Overall, our study is, therefore, a major departure from much of the existing accounting literature that offers new crucial insights that show that firms' disclosure choices are not mainly shaped by firm-level (internal) governance arrangements, but also country-level (external) governance and religious factors.

In particular, our paper highlights the role of the multi-layer governance mechanisms in encouraging bank financial reporting quality in terms of risk disclosure. In doing so, our study extends, as well as contributes to the extant research. First and drawing intuitions from a resource dependence theory perspective, we provide an evidence relating to the positive influence of SSB on the level of risk disclosure by banks. Previous research suggests that *Sharia* boards play a significant role in monitoring bank's financial reporting quality (Al-Bassam & Ntim, 2017; Farook et al., 2011; Safieddine, 2009). We expand this nascent research by offering evidence that SSB can serve as an additional governance layer with ability to thoroughly monitor and scrutinise managerial decisions, including those relating to disclosures. We argue that by highlighting the monitoring, performance and value maximising roles of SSB within MENA banks, our finding may help inform the decisions of the various stakeholders of banks, such as employees, depositors, investors, government and regulators. Second, our findings show that ownership structures constitute an important channel through which corporate governance may influence risk disclosure level, and thereby helping in identifying clear mechanisms and motives (e.g. gaining access to critical resources) through which corporate governance may influence bank risk disclosure level. Third, and to the best of our knowledge, our study offers a fresh evidence on the effect of country-level factors on the level of risk disclosure. This result may potentially help investors and regulators to better understand and/or evaluate the channels (e.g. the legitimacy and regulatory setting) through which macro-level factors, such as country-level governance can affect disclosure level or/and quality, transparency, and accountability within MENA banks. Fourth, our paper contributes to the strand of literature that had called for the exploration of risk disclosure motives and drivers across countries (e.g. Dobler, 2008). The prior cross-national literature on risk disclosure and governance (e.g. Elshandidy & Neri, 2015) highlights the significance of the principal variations in economic and cultural environments when examining variables that affect accounting practices. The existing evidence on the determinants of, and the

motives for, cross-country risk disclosures (Dobler, Lajili, & Zéghal, 2011; Elshandidy & Neri, 2015) emphasises the significance of observing variances in risk disclosure practices and examining the specific variables that can explain such differences. None of the existing studies (Dobler et al., 2011; Elshandidy & Neri, 2015) have, however, examined how corporate governance mechanisms affect risk disclosure practices in developing countries. Finally, we seek to extend the existing literature by examining whether the effect of the multi-layer governance mechanisms on risk disclosure is driven by bank ownership concentration type in MENA countries.

This study has a number of implications for policymakers, regulators, practitioners and investors, as well as IBs, CBs and DBs, especially for banks and authorities in other emerging markets. Firstly, the results show that the banking sector has responded to the recent regulatory pressures to enhance disclosure, transparency, and governance. Thus, these results support the importance of risk disclosure regulation for management, policymakers, and regulators in the banking sector, especially after GFC. Secondly, the findings demonstrate the importance of current CG reforms in MENA banks and their impact on enhancing risk disclosures. Examples of such changes include: employing independent chairpersons; increasing board size; and independent members acting as effective bank level advisors and monitors of risk disclosure. As a consequence, regulators and policymakers should continually pursue reforms that has to potential to encourage banks to follow CG principles that are promoted as good practice. Thirdly, for IBs and DBs, the results demonstrate the importance of SSB, which works with BODs as additional governance layers to enhance transparency through comprehensive risk disclosures. Finally, for policymakers, regulators and investors, our country-level governance results support the importance of sound governance institutions, such as control of corruption in enhancing a banks' transparency through risk disclosures.

This research suffers from some limitations. This study depends on banks annual reports only, and although important, they are not the only means by which banks disclose information about risk. Future research could examine the economic consequences of risk disclosure from an equity and debt investors' perspective, as well as its impact on bank performance and value. Second, valuable insights might be offered by future studies by performing in-depth interviews with bank managers, directors and owners regarding these issues, especially in Islamic banks. Third, further research can address sample size limitations and the impact of further CG mechanism (e.g. audit committee, risk committee and independence non-executive board members) on risk disclosure quality. Further empirical research could explore our multi-layer governance analysis of the complex inter-relationships between firm- and country-level governance structures in determining firm value.

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Appendices

Appendix A1. The main corporate governance codes/guidelines changes in MENA countries.

Country	Code type	Issuing Entity	Compliance	First code	Latest update
Algeria	General corporate governance code	Corporate governance task force	V	2009	NA
Bahrain	General corporate governance code	Ministry of Industry, Commerce and Tourism	C	2010	2018
	Corporate governance for financial institutions	Central bank	C	2018	NA
Egypt	Code for listed companies	Corporate governance task force	C	2005	2016
	Code for stated owned enterprises	Corporate governance task force	V	2006	–
	Code for banks	Central bank	C	2011	–
Iraq	No	NA	NA	NA	NA
Jordan	Code for banks	Central bank	M	2007	2016
	Code for listed companies	Jordan securities commission	C	2007	2017
	Code for insurance companies	Jordanian insurance commission	M	2006	–
Kuwait	Code for listed companies	Capital markets authority	C	2013	
	Guidelines for banks	Central bank	V	2012	2016
Lebanon	Code for joint stock companies	Lebanese transparency association	V	2006	–
	Guidelines for listed companies	Lebanese transparency association	V	2010	–
	Code for small and medium-size enterprises	Lebanese transparency association	V	2010	–
	Guidelines for banks	Basel committee on banking supervision	M	2006	2015

(*Continued*)

Appendix A1. Continued.

Country	Code type	Issuing Entity	Compliance	First code	Latest update
Morocco	General corporate governance code	National corporate governance commission	C	2008	2018
	Code for listed companies	National corporate governance commission	C	2011	–
	Code for small and medium-size enterprises	National corporate governance commission	C	2008	2010
	Code for banks/credit institutions	Central bank	M	2010	2016
Oman	Code for listed companies	Capital market authority	M	2002	2015
	Guidelines for banks	Central bank	M	2016	–
Palestine	Code for listed companies	Corporate governance taskforce	M	2009	–
Qatar	Code for public and listed	Qatar financial markets authority	C	2009	2016
	Code for banks and financial institutions	Qatar central bank	C	2008	2015
Saudi Arabia	Regulations for listed companies	Capital market authority	M	2006	2018
	Principles of corporate governance for banks	Saudi Arabian Monetary Agency	M	2014	–
Syria	Code for joint stock companies	Capital market authority	M	2008	–
	Code for financial intermediaries	Central bank of Syria	M	2009	–
	Corporate governance act for insurance companies	Syrian insurance supervisory commission	M	2007	–
Tunisia	Code of best practice of corporate governance	Corporate governance institute	V	2008	–
	Guidelines for banks and credit institutions	Central bank	M	2011	–
	Code for banks	Central bank	V	2013	–
UAE	Code for banks	Central bank	M	2006	2010
	Code for listed companies	Securities and commodities authority	M	2007	2016
	Code for SMEs	Dubai SME	V	2011	–
	Code for real estate developers	Real estate regulatory agency	C	2012	–
	Code for joint stock companies	Securities and commodities authority	M	2007	2009
Yemen	Code for listed companies	Corporate governance taskforce	V	2010	–

Notes: C = Comply or Explain, M = Mandatory, V = Voluntary.
Source: Amico (2014), IFC, central banks and capital markets authorities' websites.

Appendix A2. Risk disclosure index.

Risk type	Risk disclosure index (*RDI*)
	Bank financial risk disclosure
(i) Credit	1. Exposure to credit risk and how they arise. 2. Objectives, policies and processes for managing the credit risk. 3. Method of measuring credit risk exposure. 4. Adequately describes how credit risk management occurs including providing a clear linkage between the quantitative data and qualitative description. 5. Changes in exposure to credit risk, measurement of risk, and objectives, policies and processes to manage the credit risk from the previous period. 6. Amount of regulatory capital for credit risk (pillar 1 capital). 7. Information about credit quality of financial assets that are not past due or impaired. 8. Renegotiated financial assets (that would be past due or impaired). 9. Aging schedule for past due amounts. 10. Impairment methods and inputs disclosed. 11. Summary quantitative data about exposure to credit risk at the reporting date. 12. Maximum credit exposure by currency. 13. Maximum credit exposure by geography. 14. Maximum credit exposure by economic activity.

(*Continued*)

Appendix A2. Continued.

Risk type	Risk disclosure index (*RDI*)
	15. Disaggregated maximum credit risk exposure including derivatives and off-balance sheet items (e.g. financial guarantees, and contingent commitments).
	16. Renegotiated loans for troubled borrowers.
	17. Risk of counterparty.
	18. Credit risk concentrations.
	19. Derivatives.
	20. Off-balance sheet and joint venture structures.
	21. Credit risk transfer/mitigation/hedging techniques.
	22. Collateral.
	23. Disclosures to help users understand credit risk.
(ii) Liquidity	24. Exposure to liquidity risk and how they arise.
	25. Objectives, policies and processes for managing the liquidity risk.
	26. Methods used to measure the liquidity risk.
	27. Changes in exposure to liquidity risk, measurement of risk, and objectives, policies and processes to manage the liquidity risk from the previous period.
	28. Contractual undiscounted cash flows.
	29. Maturity analysis of non-derivative liabilities.
	30. Maturity analysis of derivative liabilities.
	31. Maturity analysis of off-balance sheet commitments and other financial instruments without contractually stipulated maturity (e.g. financial guarantees, etc.).
	32. Maturity analysis of financial asset.
	33. Expected maturity analysis.
	34. Derivative and trading liabilities Treatment.
	35. Liquidity risk transfer/mitigation/hedging techniques.
	36. Liquidity buffers sources and volume.
	37. Sensitivity analysis.
	38. Financing facilities.
	39. Counterparty concentration profile.
	40. Disclosures to help users understand liquidity risk.
(iii) Market	41. Objectives, policies, processes, and Strategies of market risk management.
	42. Structure and organisation of the market risk management function.
	43. Instruments traded types.
	44. Interest rate risk.
	45. Equity risk.
	46. Currency risk.
	47. Commodities risk
	48. Market risk transfer/mitigation/hedging techniques.
	49. Linkage with credit risk.
	50. Amount of regulatory capital for market risk (pillar 1 capital).
	51. VAR (value-at-risk).
	52. VAR limitations.
	53. Stress testing.
	54. Stress VAR.
	55. Back-testing.
	56. Disclosures to help users understand market risk.
(iv) Capital	57. Capital management.
	58. Capital measurement.
	59. Risk weighted assets.
	60. Tier 1.
	61. Tier 2.
	Bank non-financial risk disclosure
(v) Operational	62. Amount of regulatory capital for operational risk (pillar 1 capital).
	63. Regulatory capital for operational risk Measurement approach.
	64. Operational risk management Strategies and processes.
	65. The operational risk management function structure and organisation.
	66. Scope and nature of the operational risk reporting system
	67. Operational risk transfer/mitigation/hedging techniques.

(*Continued*)

Appendix A2. Continued.

Risk type	Risk disclosure index (*RDI*)
	68. Operational value-at-risk.
	69. Internal audit function/internal control system.
	70. Key risk indicators (KRIs)/early warning systems (EWSs).
	71. Self-assessment techniques (SA).
	72. Stress tests/ Scorecard models/scenario analyses.
	73. Operational risk event databases (internal/external).
	74. Legal risks.
	75. Additional information on risk exposure and management (e.g. cumulative amounts of historical operational losses classified by event types and business).
	76. Technology/information technology.
	77. Compliance.
	78. Marketing/customer satisfaction/boycott.
	79. Competition/proprietary/copyright.
	80. Personnel (human error, labour disputes, loss of/recruiting key employees).
	81. Integrity/management and employee fraud.
	82. Business ethics/corruption.
	83. Disclosures to help users understand operational risk.
(vi) Strategic	84. Sovereign/politics.
	85. Performance measurement.
	86. Regulation.
	87. Taxation.
	88. Macroeconomic trends.
	89. Natural disasters/terrorism.
	90. GDP growth/market demand/aggregate demand.
	91. Intellectual property rights.
	92. New alliances, joint ventures and acquisitions.
	93. Management of growth.
	94. Reputation/goodwill/image/brand name.
	95. Strategy.
	96. Disclosures to help users understand strategic risk.
Total	**96 risk disclosure items**

Procedure of scoring for un-weighted index
0: Risk item not disclosed by bank.
1: Risk item disclosed by bank.
Procedure of scoring for weighted index
0: Risk item not disclosed by bank.
1: Risk item disclosed by bank contains past, future, good, bad and/or qualitative information.
2: Risk item disclosed by bank contains past, future, good, bad, qualitative and/or quantitative information.